



City of New London



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Community Resilience Building Workshop

Summary of Findings

August 2018

City of New London

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Overview

The need for municipalities, academic institutions, regional planning organizations, states and federal agencies to increase resilience and adapt to extreme weather events and a changing climate is strikingly evident amongst the communities of the state of Connecticut. Recent events such as Tropical Storm Irene and Sandy have reinforced this urgency and compelled leading communities like the City of New London to proactively collaborate on planning and mitigating risks. Ultimately, this type of leadership is to be commended because it will reduce the vulnerability of municipal residents, infrastructure, and ecosystems and serve as a model for other communities in Connecticut, New England, and the Nation.

In the spring of 2018, the City of New London embarked on certification via Sustainable CT. As part of that certification, Sustainable CT and the Nature Conservancy provided the City with a voluntary process to conduct an assessment of climate change impacts. In August 2018, a municipal-based core team organized a Community Resilience Building Workshop facilitated by the Nature Conservancy in partnership with Sustainable CT. The core directive of this effort was the engagement with and between community stakeholders to facilitate the assessment of climate vulnerabilities and the education, planning ,and ultimately implementation of priority adaptation actions for New London. The Workshop's central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify existing and future vulnerabilities and strengths;
- Develop prioritized actions for the City of New London;
- Identify opportunities to collaboratively advance actions to increase resilience.



For the Workshop, the City of New London employed a unique “anywhere at any scale”, community-driven process known as the Community Resilience Building (CRB) Workshop (www.CommunityResilienceBuilding.org). The CRB’s Risk Matrix and various data and maps were integrated into the Workshop process to provide both decision-support and risk visualization around shared values and priorities across New London. Using this CRB process, rich with information, experience and dialogue, the participants produced findings which are outlined in this summary report. The following report provides an overview of the top hazards, current concerns and challenges, current strengths, and proposed actions to improve New London’s resilience to natural and climate-related hazards today and in the future.

The summary of findings transcribed in this report, like any that concern the evolving nature of risk assessment and associated action, are proffered for comments, corrections and updates from workshop attendees and additional stakeholders alike. The leadership displayed by the City of New London on community resilience building will benefit from the continuous and expanding participation of all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

During the CRB Workshop, community members were asked to identify the top hazards for the City of New London. The hazards of greatest concern to the participants included extreme weather events - namely hurricanes. The other hazards of greatest concern were precipitation-driven flooding of streets and associated buildings and facilities as well as impacts from snow storms. These hazards have direct and increasing impacts on New London’s residents and resources such as its neighborhoods, waterfront, public beaches and parks, streets, parking garages, transportation hubs, drinking and wastewater systems, health care facilitates, social support service to vulnerable populations, and other critical infrastructure and community assets.



Top Hazards and Areas of Concern for the Community

Top Hazards

- Hurricanes (coastal flooding and sea level rise)
- Inland Flooding (precipitation-driven)
- Snow Storms (Nor'easters - ice, snow, wind)

Areas of Concern in New London*

Neighborhoods: Storm basins and streams near Broad Street, West Ridge (condos), Shaw's Cove.

Ecosystems: Green Harbor Beach, Ocean Beach Park, Waterfront Park, Osprey Beach (private beach), Guthrie Beach (private beach), Alewife Cove

Transportation: Broad Street, intermodal transportation hub (access/egress), Pequot Avenue, Broad Street, Bank Street, Ledyard Street, Connecticut Avenue, Water Street, Truman Street, Blackhall Street, Tilley Street, Garfield Avenue at Elm Street, Hamilton Street, East Street, Howard Street, Glenwood Avenue Bridge.

Infrastructure: Stormwater system, EOC/Firehouse (289 Bank Street), Water Street Garage (structure and sub pumps), Pumping Station #9 (Bank Street), Police Station on Water Street, Health Department trailers, Public Works Complex, Police Department Headquarters (5 Governor Winthrop Blvd.), Water Pollution Control Facility (Trumbull Street), sewage pump stations, Community Health Center (1 Shaw Cove), New London High School, 155 properties in AE zone, 43 properties in VE zone, 16 repetitive properties, retaining wall on Pequot Avenue, retaining wall near Alewife Cove and Highland Avenue, Brandagee Lake Dam (Class B), Perry Pond Dam, various Brownfields.

Vulnerable Populations: Renters or Transient, Elderly, Developmentally Disabled, Non-English Speaking, Low Income, Undocumented.

* Information above from workshop participants as well as from the NHMP Update Annex for City of New London (2017).



Current Concerns and Challenges Presented by Hazards

The City of New London has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, New London has experienced a series of highly disruptive and damaging weather events including Tropical Storm Irene (August 2011), Tropical Storm Sandy, (October 2012), and winter Nor'easter Nemo (February 2013). Impacts from Irene included coastal storm surge, heavy rain-induced inland flooding and wind damage. Sandy caused power outages across large portions of New London. Winter storms drop excessive snow on the City knocking out power and isolating residents. The magnitude and intensity of these events and others across Connecticut has increased awareness of natural hazards and climatic change, while motivating communities like New London to comprehensively improve resilience.

This series of extreme weather events highlights that for New London the impacts from hazards are diverse; they range from storm surge and flooding of surface streets and low-lying areas near the coast, rivers, and wetlands during intense storms and heavy precipitation events to property damage from trees, wind, snow, and ice. Longer periods of elevated heat, particularly in July and August, have raised concerns about vulnerable segments of the population including the elderly and disabled. The combination of these issues presents a challenge to preparedness, response and mitigation priorities and requires comprehensive yet tailored actions for particular locations and/or areas across New London.

The workshop participants were generally in agreement that New London is experiencing more intense and frequent storms events and heat waves. The impacts have affected the daily activities of most residents. Additionally, there was a general concern about the challenges of being prepared with contingency plans for worst case scenarios during different times of the year (i.e. major disasters, storms, major hurricanes (Cat-3 or above)) particularly in the fall/winter due to more intense storms.



(Credit: CT Postcardst)



(Credit: Geographically yours)



(Credit: The Jumping Frog)



Specific Categories of Concerns and Challenges

Road Network Flooding

The concerns within the City related to all forms of flooding - from storm surge and sea level rise to precipitation-driven inland - were prominent amongst the participants. The coastal flooding and subsequent erosion is an ongoing issue with public amenities such as Ocean Beach Park and Green Harbor Beach. Many surface streets were identified as being either occasionally flooded by coastal storm surge associated with major storms (i.e. Irene, Sandy) or from precipitation overwhelming the conveyance capacity of the stormwater drainage system in various neighborhood and transportation corridors (i.e. Bank Street, Broad Street, etc.). In some locations such as on streets near Green Harbor Beach (Pequot Avenue) flooding of surface streets is due to a combination of both coastal and inland flooding. While in some cases the remedy has included installation of new pumps (i.e. Bank Street Pump Station) or repairing damage road segments post storm, the participants highlighted the potential of exercising the state's first stormwater utility in New London to discover larger system-wide solutions. New London's stormwater utility will allow for a more refined assessment, mapping, and maintenance of the stormwater management system and ultimately funding to improve conveyance and reduce surface street flooding.

Social Vulnerability of Residents

One of the more important discussions at the workshop revolved around the economic and social disparities across the City. It was highlighted that there are many families ("100s") that are "living on the edge" where the threat of major disasters will result in disproportionate impacts due to the compromised nature of their current economic, social, and health conditions. Stand alone or the combination of chronic issues such as lack of mobility, no paid leave, chronic disease, addiction, cost of rent, and low wages among others can become insurmountable challenges during and after a major disaster. These ongoing needs and the available resources through entities such as Ledge Light Health District, NGOs, and other sources do not often match. The participants stressed that greater attention to these disparities will ultimately make New London a more sustainable and resilient community.



Current Strengths and Assets

Because of the recent experiences with extreme weather, the City of New London is well acquainted with existing and shared strengths. Reinforcing best practices and enhancing available assets will generate greater benefits to the City through increased resiliency to more frequent and intense storms, as well as to long term impacts from the ongoing increases in air temperature, precipitation, and drought.

- The responsive and committed leadership exhibited by officials and senior staff is a very appreciated strength in the City of New London. Ongoing collaboration between City, adjoining municipalities, Council of Governments, SECT Enterprise Region along with the business community and NGOs on the priorities as identified below will help advance comprehensive, cost-effective, approaches to resilience. Mutual aid agreement with surrounding communities was raised as an asset.
- The City has solid, highly experienced, staff with access to adequate resources for shorter duration events. The overarching coordination amongst various departments was cited as an ongoing, and highly valued community strength. Highly active and engaged NGO community that provides ongoing services for various groups including disadvantaged and resource-limited residents.
- Supportive social services for elderly, youth, and families as well as help from faith-based organizations (55 different places of worship) were highlighted as important community assets.
- Regionalize health care services (Ledge Light Health District) that allow for efficiencies across the City of New London and the eight surrounding municipalities.
- The establishment of Connecticut's first storm water utility in the City of New London will help to advance comprehensive understanding and management of the stormwater issues across the City.
- The presence of an intermodal transportation hub/system in downtown New London as well as a regional hospital were highlighted as true asset for the City and the surrounding area.
- Large number of critical facilities (Police, Fire, Senior Center) with generators installed and maintained.



Credit: New London Main Street
A. Vincent Sciarra, Photographer



Top Recommendations to Improve Resilience

A common thread throughout the workshop discussions was the recognition that New London needs to be better prepared through longer-term, community-based, contingency planning across all sectors and areas of concern. This need and additional key issues surfaced by the Workshop participants are provided below. The actions identified in the Hazard Mitigation Plan Update - Annex for City of New London (December 2017) were reviewed in workshop and have been inserted in the Appendix of this Summary of Findings report.

Higher Priority

- Continue to advance the city-wide stormwater utility to increase the understanding, mapping, engineering review, maintenance, and capacity of the system to convey stormwater. Develop a comprehensive green stormwater infrastructure plan that adopts standard designs (i.e. bioswales) for New London.
- Seek actions to reduce the impacts and erosion of Green Harbor due to coastal storm surge and flooding. Conduct vulnerability assessment and design feasible responses to maintain this public amenity long term.
- Strengthen ability of Ledge Light Health District, NGOs, faith-based organizations and other social services and support entities to care for all those families in need across New London during emergency and non-emergency times.
- Look to include the emergency management community in the Health Improvement Collaborative and collaboratively seek opportunities to support families long after event (6 months or more).
- Maintain public amenities (i.e. City Piers with mooring fields) and transportation hub to help attract and retain visitors and tourism to New London in hopes of strengthening the resilience of the local economy.
- Make use of this time of socio-economic transition and opportunity in the City to incentivize mixed-use, mixed income, housing redevelopments that are resiliently designed to benefit the residents and not add to existing concerns. Look to encourage a revitalization and reimagination of the downtown area to attract new residents and visitors.



Community Resilience Building Workshop Recommendations

Higher Priority (cont'd)

- City needs to develop through broad public outreach a coordinated and comprehensive evacuation plan. Plan should connect and help coordinate the availability/needs of sheltering and cooling facilities.
- Advance the City's Shade Tree Commission implementation of a Tree Removal and Replacement program including creating a tree inventory.
- Build on the Southeastern Connecticut Regional Resilience Framework initiative to further advance discussion and planning for regionalization of services to get to more sustainable and resilient communities in and around New London.
- Conduct urban tree canopy study to understand current distribution, age, and species in order to generate prioritized planting locations in the short and long term.
- Ensure that the New London County Food Policy Council completes and advances a food action plan featuring local production and processing as well as an urban agriculture plan for New London.



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Moderate Priority

- Continue to maintain two feet of freeboard requirements for property renovation or new construction in AE and VE FEMA flood zones.
- Adopt a standardized maintenance program for catch basins and street sweeping throughout City to minimize silt, sediments, and road pollutant transport into inland and tidal wetland systems, Thames River and Long Island Sound.
- Clean and inspect catch basins and culverts at least annually or more often if problems are recorded.
- Look to include emergency management community in the Health Improvement Collaborative.



Community Resilience Building Workshop Recommendations

Moderate Priority (cont'd)

- Take steps to explore opportunities to purchase and install generator at High School as alternative or perhaps primary sheltering facility in New London.
- Begin dialogue with Hospital regarding the safety and well being of patients, staff, and families receiving care or employment in advance of major disasters. Broaden discussions regarding cooperative emergency management with City response and recovery efforts. Look to integrate social services community in a constructive and integrated way that capitalizes on existing strengths beyond formal health care system.
- Continue to revisit and update mutual aid agreements with surrounding municipalities on emergency management. Determine what additional agreement may be advantageous to explore.
- Ensure the relocation of elderly from the Senior Center to Windham is secured, as needed.
- Seek to compel condominium association for elderly condos on West Ridge Road to secure generators to minimize repeat of previous issue with transportation of elderly by ambulance.
- Continue to strictly enforce floodplain regulations to minimize potential flood hazards and property damage during flood events.
- Investigate the extent and severity of sand and silt deposition and erosion from Riverside Park area to Ocean Beach Park and devise appropriate action.
- Evaluate the implications of sea level rise on coastal natural resources and structures.
- Document and implement best management practices for snow and ice removal that will reduce subsequent impacts to water quality.
- Assess the implications of failure of Brandagee Lake Dam (Class B) in Waterford and downstream impacts to Perry Pond and the commercial corridor along I-95 and downtown neighborhoods.
- Advance the remediation of brownfields (15-20 known locations) and reactivate once clean-up is completed.



Community Resilience Building Workshop Recommendations

Moderate Priority (cont'd)

- Continue to draft and develop a “500 year floodplain” strategy for the downtown area that examines the long-term resiliency of the intermodal transportation system.
- Maintain catch basins and debris from brook adjoining Broad Street on an annual basis.

Lower Priority

- Maintain and upgrade evacuation routes marked with street signs.
- Continue to support agreement with landowners and companies to handle debris removal on their respective properties.
- Update and provide in advance of the winter season information for protecting residents and informing landlords during cold weather including reducing icing and insulating pipes at residents.
- Maintain and enhance the network of 26 parks and parklets in New London and seek to encourage passive recreation that can elevate the health and resilience of visitors.
- Initiate a long-term scoping exercise to identify facility needs and location for a new Emergency Operations Center.



(Credit: www.ci.new-london.ct.us)



(Credit: Twitter @NLCT)



CRB Workshop Participants: Department/Authority/Organization

City of New London - Fire Department
City of New London - Development and Planning Department
City of New London - Police Department
City of New London - Recreation
City of New London - Public Works and Engineering
City of New London - Senior Center
City of New London - Personnel
Ledge Light Health District

CRB Workshop Project Team: Organization and Role

New London Core Team

Sybil Tetteh - City Planner, New London

Workshop Team

The Nature Conservancy – Adam Whelchel, Ph.D. (Lead Facilitator)
Sustainable CT - Jessica LeClair (Support Lead)
The Nature Conservancy - Drew Goldsman (Support Staff)
Sustainable CT Fellows - Collen Dollard & Torin Radicioni (Scribes)

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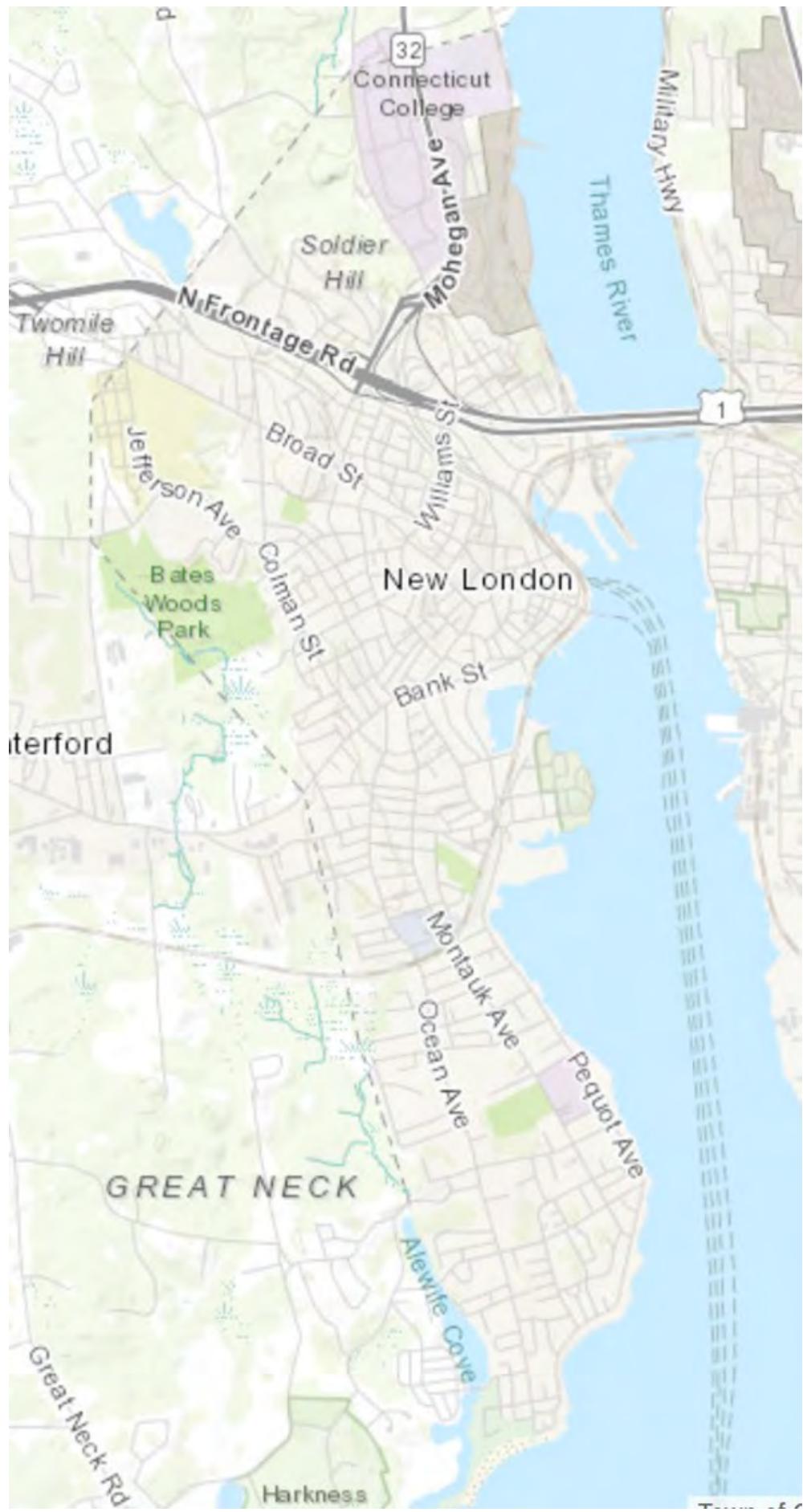
This project was made possible in part through the generous contribution of the Workshop team by The Nature Conservancy and Sustainable CT to conduct New London's Community Resilience Building Workshop in close partnership with the City's Core Team.



Appendix

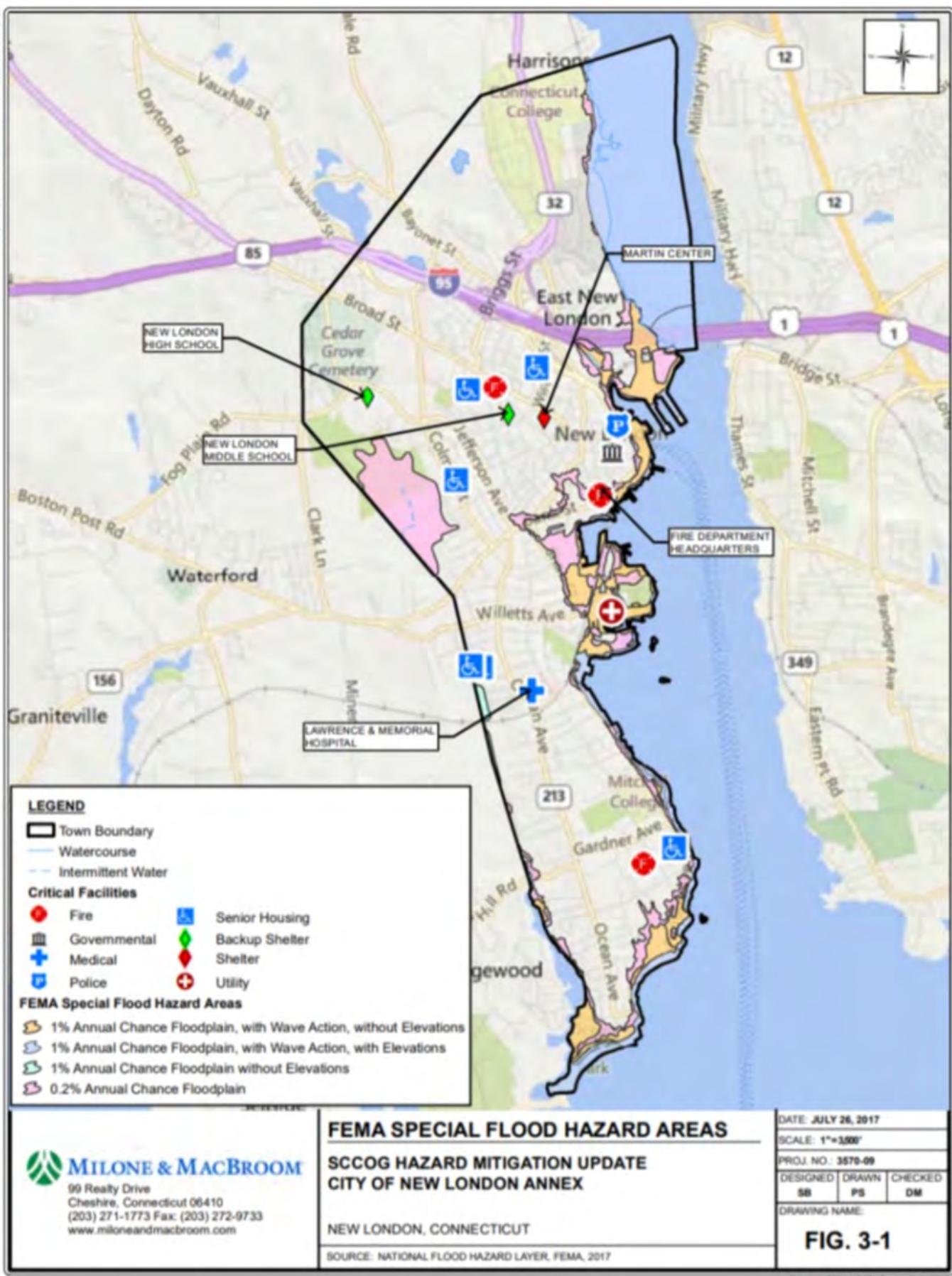
Base Map





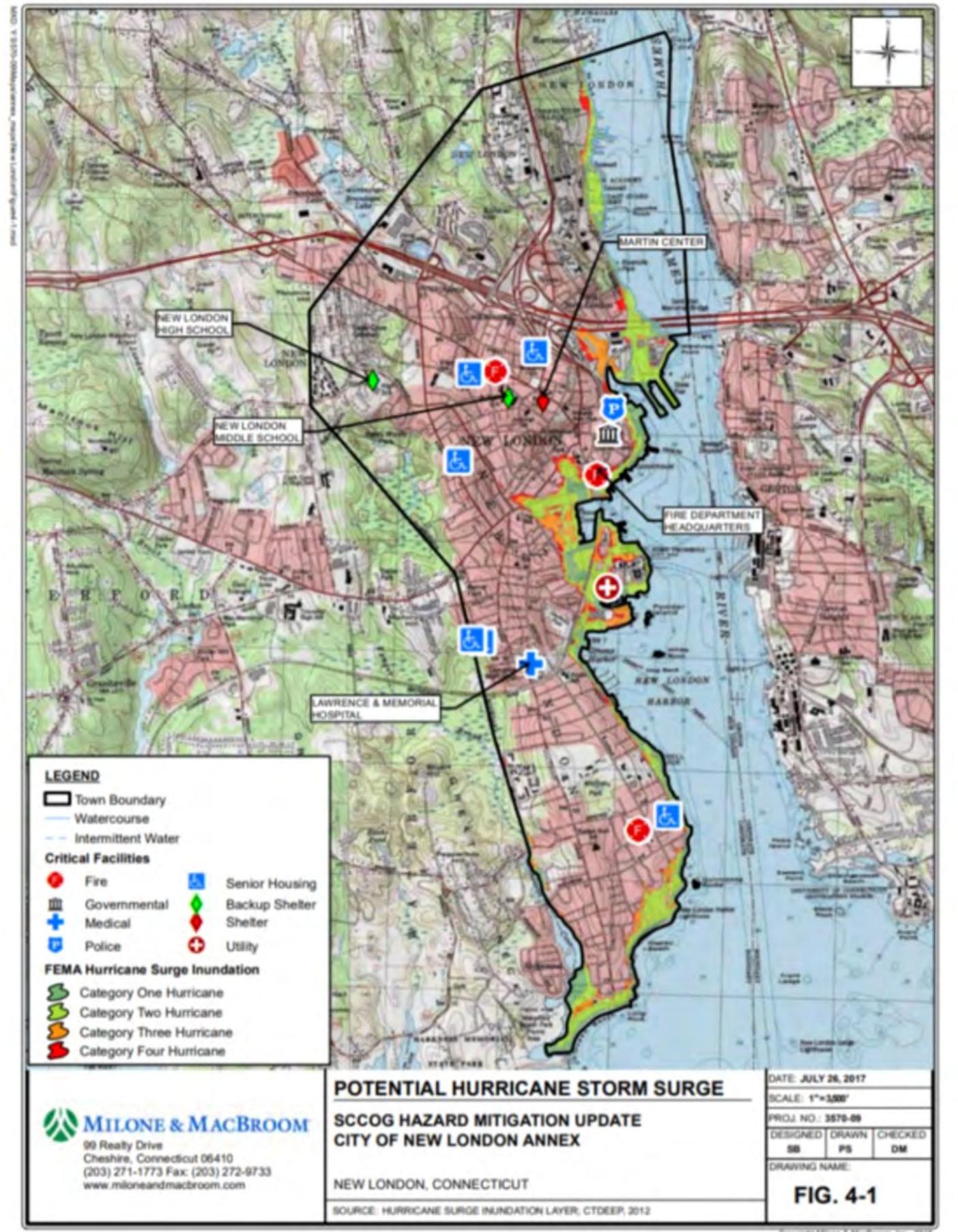
Resources and Maps Used During Workshop





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Table 11-1: Mitigation Actions and Strategies for New London 2016 - 2021

Action or Strategy #	Responsible Department ¹	Fiscal Year	Cost	Minimal <\$1,000 Low <\$10,000 Mod. <\$100,000 High >\$100,000	Potential Funding Sources ²	Weighted STAPLEE Criteria ³		Total STAPLEE Score	Priority for Community	
						Benefits	Costs			
1	Undertake stormwater improvements and initial backflow prevention at the Fire Department Headquarters to reduce the frequency of poor drainage flooding during heavy or intense rain events	New	DNW	X X X X X	High	CIB	1 0.5 1 1 1 0.5 0.5 0.5 0.5 0.5	-1 0 0 0 0 0 0 0 0 0	4.5	Low
2	Require developers to demonstrate whether deflection or elevation of stormwater is the best option for reducing peak flows downstream	Carried Forward	PL	X	Minimal	0.8	1 1 1 1 1 0.5 0.5 0.5 0.5 0.5	0 0 0 0 0 0 0 0 0 0	7.0	High
3	Compile a list of addresses of structures within the 1% annual chance floodplain and storm surge areas, and track repair costs	Carried Forward	PL	X X X X X	Low	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
4	Ensure that development at Fort Trumbull is resilient to flooding, hurricane surges, and sea level rise	Carried Forward	PL	X X X X X	Minimal	0.8	1 1 1 1 1 0.5 0.5 0.5 0.5 0.5	0 0 0 0 0 0 0 0 0 0	6.5	High
5	Include structures within the 1% annual chance floodplain and storm surge areas within the Reserve 9:1 contact database	Carried Forward	EM	X X X X X	Low	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
6	Consider an annual "Flood Fair" to familiarize the public with floodplains, flooding, flood insurance, and floodproofing	Carried Forward	PL	X X X X X	Low	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
7	Visit schools and educate children about the risks of flooding and how to prepare	Carried Forward	EM	X X X X X	Minimal	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
8	Pursue drainage improvements at Pequot Avenue near Green Harbor Beach	Carried Forward	DNW	X X X X X	High	CIB	1 1 1 1 1 0.5 0.5 0.5 0.5 0.5	0 0 0 0 0 0 0 0 0 0	5.5	Low
9	Pursue improvements to the Shaw's Cove pumping system to allow greater flood control through stormwater pumping	Carried Forward	DNW	X X X X X	High	CIB	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	5.0	Low
10	Upgrade stormwater collection and discharge systems to keep up with rising sea level	Carried Forward	DNW	X X X X X	High	CIB	1 0.5 1 1 1 0.5 0 0 0 0	0 0 0 0 0 0 0 0 0 0	4.0	Low
11	Ensure that the City's wastewater treatment facility is adequately protected from coastal flooding and storm surge	Carried Forward	DNW	X X X X X	High	CIB, HMA	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0	7.0	High
12	Develop formalized guidance for culvert and bridge construction and replacement that requires utilization of the most up-to-date seismic data from http://precise.sas.concord.edu .	New	DNW	X X X X X	Low	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
13	Determine if any at-risk structures that are not yet eligible for historic designation will be eligible in the future. This may take the form of a historic resources survey.	New	PL	X X X X X	Low	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
14	Conduct a tabletop exercise or drill among different departments to practice coordination relative to historic resources after a severe flood event	New	EM	X X X X X	Low	0.8	1 1 1 1 1 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
15	Conduct a one-time mailing to all properties in specified areas to inform them of options to reduce flood damage	New	PL	X X X X X	Low	0.8	1 1 1 1 1 0.5 0 0 0 0	0 0 0 0 0 0 0 0 0 0	7.0	High
16	Work with the State to locate NOAA weather radars in commercial buildings, with a goal population densities	Carried Forward	EM	X X X X X	Low	0.8	1 1 1 1 1 1 0.5 0 0 0	0 0 0 0 0 0 0 0 0 0	7.0	High
17	Consider surveying all City-owned buildings to determine their ability to withstand wind loads	Carried Forward	DNW	X X X X X	Low	0.8	1 1 1 1 1 1 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
18	Consider an annual Wind Fair to familiarize the public with wind hazards and potential mitigation measures	Carried Forward	EM	X X X X X	Low	0.8	1 1 1 1 1 1 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium
19	Visit schools and educate children about the risks of wind events and how to prepare for them	Carried Forward	EM	X X X X X	Minimal	0.8	1 1 1 1 1 1 0 0 0 0	0 0 0 0 0 0 0 0 0 0	6.0	Medium

¹Notes

DNW = Department of Public Works & Engineering

EM = Emergency Management

PL = Planning Department

²Notes

CIB = Capital Improvement Budget

EDC = EDC Grants

HMA = FEMA Grant Programs

OB = Operating Budget

³Notes

Beneficial or favorable ranking = 1

Neutral or Not Applicable/Ranking = 0

Unfavorable ranking = -1

Technical and Economic Factors have twice the weight of the remaining categories (i.e. their values are counted twice in each subtotal).



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Photo Credits: Destination 360

